Docket No. MWH-0029US *PATENT*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Stephen B. Liggett
Application No.:	09/856,803
Filed:	May 25, 2001 (35 U.S.C. § 371 of PCT/US99/27963, filed November 24, 1999, which claims benefit of U.S. Appl. No. 60/109,886, filed November 25, 1998)
Confirmation No.:	3706
Group No.:	1634
Examiner:	Myers, C.
For:	**POLYMORPHISMS IN THE 5' LEADER CISTRON OF THE β_2-ADRENERGIC RECEPTOR**

Commissioner for Patents

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Matthew M. Catlett

PETITION UNDER 37 C.F.R. § 1.144 FOR REVIEW OF REQUIREMENT FOR RESTRICTION

This paper is being submitted in response to the Office Action dated January 7, 2003 (*PTO Paper No. 13*), wherein the Examiner withdraws the restriction requirement with respect to the inventions of Groups I (claims 1-8 and 11) and III (claims 13-15), and maintains the restriction requirement with respect to the inventions of Groups II (claims 9 and 10), IV (claims 14-16), V (claims 18, 28, and 29), VI (claims 19 and 20), VII (claims 19 and 20), VIII (claims 21 and 23), and IX (claims 26 and 27), both to each other and to the invention of Group I (now including claims 1-8, 11, and 13-15).

Applicant thanks the Examiner for withdrawing the restriction requirement with respect to the inventions of Groups I and III. However, Applicant disagrees with the Examiner's maintenance of the restriction requirement with respect to the inventions of Groups V (claims

18, 28, and 29) and IX (claims 26 and 27), both to each other and to the invention of Group I (now including claims 1-8, 11, and 13-15).

The correct standard for restricting among groups of inventions in a 35 U.S.C. § 371 application is the existence of "unity of invention" among the groups of inventions. 37 C.F.R. § 1.475. Where a group of inventions is claimed in such an application, the requirement of unity of invention is satisfied when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. *Id.* The phrase "special technical features" are those that define a contribution which each of the claimed inventions, considered as a whole, make over the prior art. *Id.*

Because there is a technical relationship among the inventions of Groups I, V, and IX involving one or more of the same or corresponding special technical features, Applicant submits that the inventions of Groups I, V, and IX are indeed linked so as to form a general inventive concept.

The invention of Group I is directed to methods for genotyping the β_2AR gene present in an individual comprising determining the nucleotide pair at the 5' leader cistron (LC) polymorphic site in both copies of the individual's β_2AR gene. Such methods are based upon Applicant's discovery of the existence of DNA sequence variation with respect to the region upstream of the human β_2AR gene. Applicant has discovered that this variation occurs at a position 47 base pairs upstream of the coding region of the β_2AR gene, which begins at nucleotide position 1588 of SEQ ID NO:1. Applicant has, throughout the specification, defined this position as the "5' leader cistron polymorphic site."

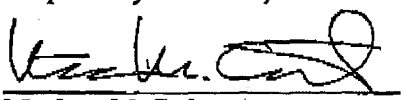
The invention of Group V is directed to methods for predicting an individual's genotype for at least one PS in the β_2AR coding block comprising determining the individual's genotype for the β_2AR 5' LC PS, and assigning a genotype to the individual for the coding block PS that is consistent with the individual's genotypoe for the β_2AR 5' LC PS.

The invention of Group IX is directed to methods for predicting a patient's bronchodilating response to an agonist of β_2AR comprising determining the patient's genotype for the β_2AR 5' LC PS, wherein a patient who is homozygous for thymine at this site is unlikely to exhibit a bronchodilating response to the agonist, and a patient who has a cytosine (in the homozygous or heterozygous state) at this site is likely to exhibit a bronchodilating response to the agonist.

As can be clearly seen, there is a feature shared by the inventions of Groups I, V, and IX, namely the step of determining the identity of the nucleotide pair at the 5' LC PS in the two copies of the β_2AR gene present in an individual, and this feature is indeed a "special technical feature," since such a step is not taught or suggested by the prior art. While the prior art (i.e. Emorine *et al.*, *Proc. Natl. Acad. Sci. (USA)* 87:6995-9 (1987)) may teach or suggest a method for sequencing the β_2AR gene (and its upstream or downstream regions), or even a method for identifying polymorphic sites in the β_2AR gene, it does not teach or suggest a method for genotyping the β_2AR gene of an individual comprising determining the identity of the nucleotide pair at a specific polymorphic site, namely the 5' leader cistron polymorphic site, in the two copies of the β_2AR gene present in the individual.

In view of the foregoing, Applicant respectfully requests that the restriction requirement be withdrawn.

Respectfully submitted,



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